

What Is Claimed Is:

- 1 1. A method for performing time measurements during
2 instrumentation-based profiling, comprising:
3 receiving a code to be profiled;
4 inserting profiling instrumentation code in the code;
5 executing the code including the instrumented portions of the code;
6 measuring a time for executing instrumented portions of the code; and
7 subtracting an overhead time for the profiling instrumentation code from
8 the measured time to obtain the time for the instrumented portions of the code.

- 1 2. The method of claim 1, wherein the code includes platform-
2 independent Java bytecodes.

- 1 3. The method of claim 1, wherein the overhead time is determined
2 by executing the profiling instrumentation code without executing any
3 instrumented code.

- 1 4. The method of claim 3, wherein the profiling instrumentation code
2 is executed multiple times to determine an average value for the overhead time.

- 1 5. The method of claim 4, wherein the profiling instrumentation code
2 includes method entry code that takes a first time measurement at the beginning of
3 a method, and method exit code that takes a second time measurement at the end
4 of the method, wherein the first and second time measurements are used to
5 calculate an execution time for the method.

1 6. The method of claim 5, wherein determining the overhead time
2 involves calculating an inner time $t_I = x_2 + y_1$, wherein y_1 is the time between
3 when the first time measurement is taken and when the method entry code is
4 finished executing, and wherein x_2 is the time between when the method exit code
5 begins executing and when the second time measurement is taken.

1 7. The method of claim 6, wherein the time t_{exact} for executing
2 instrumented portions of the code is calculated as $t_{exact} = t_{meas} - t_I$.

1 8. The method of claim 7, wherein if the method makes m calls to
2 other methods, the time for executing instrumented portions of the code
3 $t_{exact} = t_{meas} - t_I - mt_O$, wherein the outer time, $t_O = x_1 + y_2$, wherein x_1 is the time
4 between when the method entry code begins executing and when the first time
5 measurement is taken, and wherein y_2 is the time between when the second time
6 measurement is taken and when the method exit code is finished executing.

1 9. A computer-readable storage medium storing instructions that
2 when executed by a computer cause the computer to perform a method for
3 performing time measurements during instrumentation-based profiling, the
4 method comprising:
5 receiving a code to be profiled;
6 inserting profiling instrumentation code in the code;
7 executing the code including the instrumented portions of the code;
8 measuring a time for executing instrumented portions of the code; and
9 subtracting an overhead time for the profiling instrumentation code from
10 the measured time to obtain the time for the instrumented portions of the code.

1 10. The computer-readable storage medium of claim 9, wherein the
2 code includes platform-independent Java bytecodes.

1 11. The computer-readable storage medium of claim 9, wherein the
2 overhead time is determined by executing the profiling instrumentation code
3 without executing any instrumented code.

1 12. The computer-readable storage medium of claim 11, wherein the
2 profiling instrumentation code is executed multiple times to determine an average
3 value for the overhead time.

1 13. The computer-readable storage medium of claim 12, wherein the
2 profiling instrumentation code includes method entry code that takes a first time
3 measurement at the beginning of a method, and method exit code that takes a
4 second time measurement at the end of the method, wherein the first and second
5 time measurements are used to calculate an execution time for the method.

1 14. The computer-readable storage medium of claim 13, wherein
2 determining the overhead time involves calculating an inner time $t_I = x_2 + y_1$,
3 wherein y_1 is the time between when the first time measurement is taken and when
4 the method entry code is finished executing, and wherein x_2 is the time between
5 when the method exit code begins executing and when the second time
6 measurement is taken.

1 15. The computer-readable storage medium of claim 14, wherein the
2 time t_{exact} for executing instrumented portions of the code is calculated as $t_{exact} =$
3 $t_{meas} - t_I$.

1 16. The computer-readable storage medium of claim 15, wherein if the
2 method makes m calls to other methods, the time for executing instrumented
3 portions of the code $t_{exact} = t_{meas} - t_I - mt_O$, wherein the outer time, $t_O = x_1 + y_2$,
4 wherein x_1 is the time between when the method entry code begins executing and
5 when the first time measurement is taken, and wherein y_2 is the time between
6 when the second time measurement is taken and when the method exit code is
7 finished executing.

1 17. An apparatus for performing time measurements during
2 instrumentation-based profiling, comprising:
3 a receiving mechanism configured to receive a code to be profiled;
4 an inserting mechanism configured to insert profiling instrumentation code
5 in the code;
6 an executing mechanism configured to execute the code including the
7 instrumented portions of the code;
8 a measuring mechanism configured to measure a time for executing
9 instrumented portions of the code; and
10 a subtracting mechanism configured to subtract an overhead time for the
11 profiling instrumentation code from the measured time to obtain the time for the
12 instrumented portions of the code.

1 18. The apparatus of claim 17, wherein the code includes platform-
2 independent Java bytecodes.

1 19. The apparatus of claim 17, wherein the overhead time is
2 determined by executing the profiling instrumentation code without executing any
3 instrumented code.

1 20. The apparatus of claim 19, wherein the profiling instrumentation
2 code is executed multiple times to determine an average value for the overhead
3 time.

1 21. The apparatus of claim 20, wherein the profiling instrumentation
2 code includes method entry code that takes a first time measurement at the
3 beginning of a method, and method exit code that takes a second time
4 measurement at the end of the method, wherein the first and second time
5 measurements are used to calculate an execution time for the method.

1 22. The apparatus of claim 21, wherein determining the overhead time
2 involves calculating an inner time $t_I = x_2 + y_1$, wherein y_1 is the time between
3 when the first time measurement is taken and when the method entry code is
4 finished executing, and wherein x_2 is the time between when the method exit code
5 begins executing and when the second time measurement is taken

1 23. The apparatus of claim 22, wherein the time t_{exact} for executing
2 instrumented portions of the code is calculated as $t_{exact} = t_{meas} - t_I$.

1 24. The apparatus of claim 23, wherein if the method makes m calls to
2 other methods, the time for executing instrumented portions of the code
3 $t_{exact} = t_{meas} - t_I - mt_O$, wherein the outer time, $t_O = x_1 + y_2$, wherein x_1 is the time
4 between when the method entry code begins executing and when the first time
5 measurement is taken, and wherein y_2 is the time between when the second time
6 measurement is taken and when the method exit code is finished executing.